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**1998  
MISSOURI  
EMERGENCY SERVICE VEHICLE  
CRASHES**

**Missouri State Highway Patrol**

A division of the

**Department of Public Safety**

***1998***  
***MISSOURI***  
***EMERGENCY SERVICE VEHICLE***  
***CRASHES***

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## FOREWORD

This publication was produced by the Missouri State Highway Patrol Statistical Analysis Center at the request of the Missouri Division of Highway Safety.

It is the mission of this Division to reduce the number and severity of deaths, injuries and property damage caused by traffic crashes in our state. Documents such as the *Emergency Service Vehicle Crashes* report assist in determining countermeasures which can have a relevant impact toward that mission.

We invite traffic safety officials and managers/operators of emergency vehicles to carefully review this document in order to analyze their own crash experience. This will enable them to ensure that proper precautions and training opportunities are implemented at their level.

If further information on traffic safety programs or additional statistical support is required, requests should be forwarded to the Division of Highway Safety at the address posted above.

Sincerely,

A handwritten signature in black ink that reads "Joyce F. Marshall". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Joyce F. Marshall  
Director



## **ACKNOWLEDGEMENTS**

The Missouri Division of Highway Safety requested publication of this report to determine the magnitude, severity, and characteristics of traffic crashes involving emergency service vehicles in the State.

The primary source of information in this report was traffic crash data obtained from the Statewide Traffic Accident Records System (STARS). The Missouri State Highway Patrol, Traffic Division, is responsible for coordinating the STARS program as well as encoding all traffic crash data being reported.

Special recognition is given to all Missouri law enforcement agencies and officers who provide traffic crash investigation services on Missouri roadways and report their findings to STARS. Because of their efforts, traffic safety authorities have the capability of conducting analysis on Missouri's emergency service vehicle traffic crash problems.

Over the past few years, the ability to analyze Missouri's traffic safety problems using STARS data has been greatly enhanced, in large part, due to the Missouri Traffic Records Committee. This Committee was developed to act as an advisory body to the Missouri State Highway Patrol for upgrading and maintaining STARS.

Finally, the U.S. Department of Transportation, National Highway Traffic Safety Administration, has supported the Statistical Analysis Center's efforts to provide meaningful research services and publications to Missouri traffic safety authorities. Their financial support and technical assistance is appreciated.

Ronald G. Beck, Director  
Statistical Analysis Center  
Missouri State Highway Patrol



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## **EXECUTIVE SUMMARY**

The purpose of this report is to provide the Missouri State Highway Patrol, the Missouri Division of Highway Safety, and other State and local authorities with information on the problem of emergency service vehicle traffic crashes in the State of Missouri. In 1998, Missouri experienced 1,812 emergency service vehicle traffic crashes. Crashes of this nature are of special concern to traffic safety authorities because emergency service vehicles and, more importantly, their staff are critical public safety resources whose loss due to traffic crashes adversely affects the public welfare.

The primary source of data used in this study was the Missouri Statewide Traffic Accident Records System (STARS).

In 1998, there were 1,812 Missouri traffic crashes involving 1,851 emergency service vehicles. Four persons were killed and 632 persons were injured in these traffic crashes. Of the 1,851 emergency service vehicles involved, 382 (20.6%) were on an emergency run at the time of the crash. The seriousness of these traffic crashes is compounded by the fact that the incident no doubt delayed or prevented the unit from responding to the original emergency situation.

Police vehicles account for the majority of emergency service vehicles involved in Missouri traffic crashes. Of the 1,851 emergency vehicles involved in 1998 traffic crashes, 1,510 (81.6%) were law enforcement vehicles. This finding is not surprising since there are a significantly greater number of police vehicles in operation compared to ambulances and fire vehicles. In addition, many law enforcement units patrol Missouri roadways throughout their shift, while ambulances and fire vehicles are normally stationed at fixed locations until called to respond to a situation.

Of the 1,851 emergency vehicles involved in 1998 Missouri traffic crashes, 169 (9.1%) were fire vehicles. Although no accurate count is available, the number of fire vehicles in the State is estimated to be larger than the ambulance vehicle population but much less than the police vehicle population. As with ambulances, fire vehicles made up a higher proportion of those vehicles involved in traffic crashes while on emergency runs. Of the 382 vehicles making an emergency run when involved in a traffic crash in 1998, 78 (20.4%) were vehicles of this type.

Of the 1,851 emergency service vehicles involved in 1998 Missouri traffic crashes, 155 (8.4%) were ambulances. However, ambulances do not make up a large proportion of the State's emergency service vehicle population. According to the Missouri Department of Health, Emergency Services Bureau, there were only 928 licensed ambulances in the State as of July 30, 1998. Ambulances also made up a higher proportion of emergency service vehicles involved in traffic crashes while making emergency runs. Of the 382 emergency service vehicles involved in 1998 Missouri traffic crashes while on emergency runs, 48 (12.6%) were ambulances.



## INTRODUCTION

This report is one in a series which identifies the magnitude, severity, and characteristics of emergency service vehicles involved in traffic crashes occurring in the State of Missouri. It describes Missouri's emergency service vehicle traffic crash experience in 1996 - 1998 with emphasis on the most recent year (1998).

Missouri traffic safety authorities have expressed an interest in studying these types of incidents for a number of reasons. First, in a sizable portion of these incidents, the emergency service vehicles are responding to other emergency situations. In most instances, their involvement in traffic crashes either delays or totally prevents them from providing the emergency care services being requested. The timeliness of providing their services can be a critical factor in preventing further death, serious injury, and/or property damage in emergency situations.

Second, emergency service vehicles and, more importantly, the staff who operate them are critical public safety resources which the community can ill afford to lose as a result of their involvement in traffic crashes. Costs associated with vehicle replacement or repair are high because these types of vehicles are configured for emergency response (i.e., heavy suspension systems, larger engines, improved braking systems, emergency lights, siren, etc.). Even more significant are losses resulting from qualified emergency service staff being killed or injured in these traffic crashes. The loss of technically trained emergency service manpower reduces the community's capabilities to adequately respond to future emergency situations.

Finally, emergency vehicles involved in traffic crashes can result in death and injury to not only emergency vehicle staff but to other parties involved in the traffic crash.

Data used in this study were obtained from the Missouri Statewide Traffic Accident Records System (STARS). This system is maintained by the Missouri State Highway Patrol (MSHP). In accordance with State statute, law enforcement agencies are required to investigate traffic crashes occurring on public roadways if they involve a death or personal injury or property damage over \$500.00. They submit their findings on a standard traffic accident report form to the STARS system. This standard traffic accident report form contains two fields designed to identify whether the vehicles involved were emergency service vehicles, the type of emergency service vehicle (police, fire, ambulance, or other), and whether or not it was on an emergency run.

Data from the traffic accident report forms are encoded by MSHP staff in computerized files. These files were made available to the MSHP Statistical Analysis Center (SAC) staff who conducted the analysis.

It should be noted that not all motor vehicle incidents involving damage to emergency service vehicles or injury to its staff were analyzed in this study due to data non-availability. Data on traffic crashes occurring on private property, such as a private driveway, were not attainable for this analysis. In addition, certain incidents are not classified as traffic crashes. For instance, cases where police establish a roadblock and a pursued person uses their vehicle to intentionally ram the blocking police vehicle are not classified as traffic crashes and are not included in this analysis.

The findings from this study are described in the following four sections. The first section provides an overview of Missouri's emergency services traffic crash problem. The second section describes the findings from an analysis which focuses on police vehicle involvement. The third section describes fire vehicle involvement and the last section covers ambulance involvement.





## 1.0 EMERGENCY SERVICE VEHICLE INVOLVEMENT OVERVIEW

*This section presents a series of data displays which describe Missouri's emergency service vehicle traffic crash activity. Traffic crashes involving emergency service vehicles are defined as any crash in which one or more emergency service vehicles were directly involved in the incident. Emergency service vehicles include those assigned to law enforcement agencies, fire departments, and ambulance service agencies. In addition, vehicles operated by other agencies, such as public utilities and public service corporations, are considered emergency vehicles but only when they are actually performing emergency services.*

### SUMMARY OF ANALYSIS

- In 1998 there were 1,812 traffic crashes involving 1,851 emergency service vehicles in the State of Missouri. Four persons were killed and 632 persons were injured in these traffic crashes. One person was killed or injured every 13.8 hours in these types of crashes in 1998.
- Police vehicles comprise the largest number of emergency service vehicles involved in Missouri's traffic crashes. Of the 1,851 emergency service vehicles involved, 1,510 (81.6%) were police vehicles. They were involved in 1,488 traffic crashes. A total of 382 emergency service vehicles were on emergency runs when the traffic crash occurred. Of these, 239 (62.6%) were police vehicles. Law enforcement officers on-duty annual miles of travel are, no doubt, much greater than other types of emergency service providers. A large proportion of law enforcement officers are assigned to patrol Missouri's roadways throughout their normal shift of operations for crime prevention purposes as well as to provide quick response to calls for services. Normally, fire and ambulance service personnel are stationed at fixed locations from which they respond to emergency situations. In addition, there are larger numbers of police vehicles working Missouri's roadways than either ambulances or fire vehicles. The fact that law enforcement officers' on-duty miles of travel are substantially greater increases their risk of being involved in traffic crashes.
- Fire vehicles were the second most common type of emergency vehicle involved in Missouri's traffic crashes in 1998. Of the 1,851 emergency vehicles involved in 1998 Missouri traffic crashes, 169 (9.1%) were fire vehicles. They were involved in 166 traffic crashes. Of the 382 emergency vehicles on emergency run at the time of the traffic crash, 78 (20.4%) were fire vehicles.
- Ambulances were the third most frequent emergency vehicle type involved in Missouri's 1998 traffic crashes. Of the 1,851 emergency vehicles involved, 155 (8.4%) were ambulances. They were involved in 153 traffic crashes. Like fire vehicles, ambulances were more likely to be involved in a traffic crash when on an emergency run. Of the 382 emergency vehicles on emergency run when the traffic crash occurred, 12.6% were ambulances.
- Emergency vehicles classified as 'Other' made up a small proportion of those involved in Missouri's 1998 traffic crashes. Of the 1,851 emergency vehicles involved, only 17 (0.9%) were emergency vehicles classified as 'Other'.

## 1998 MISSOURI TRAFFIC CRASHES

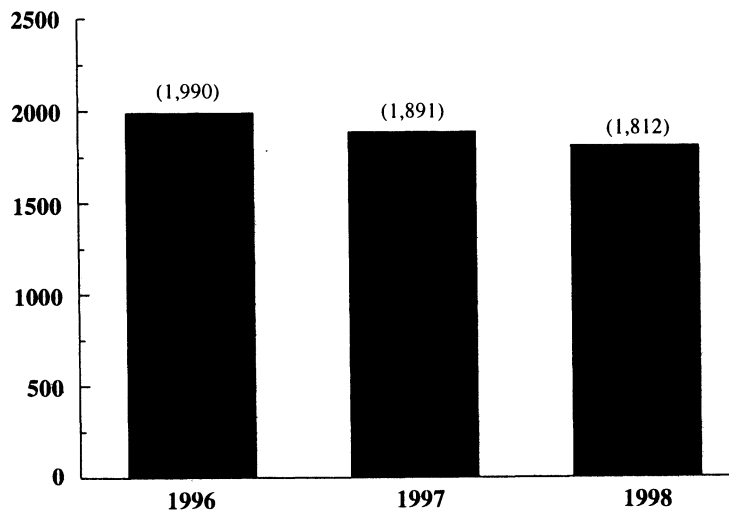
### EMERGENCY SERVICE (ES) VEHICLE INVOLVEMENT

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ES VEHICLE INVOLVED	4	0.4	379	0.7	1,429	1.0	1,812	0.9
NO ES VEHICLE INVOLVED	1,013	99.6	50,825	99.3	141,334	99.0	193,172	99.1
<b>TOTAL</b>	<b>1,017</b>	<b>100.0</b>	<b>51,204</b>	<b>100.0</b>	<b>142,763</b>	<b>100.0</b>	<b>194,984</b>	<b>100.0</b>

**TABLE 1.0.1**

### MISSOURI EMERGENCY SERVICE VEHICLE INVOLVED CRASHES

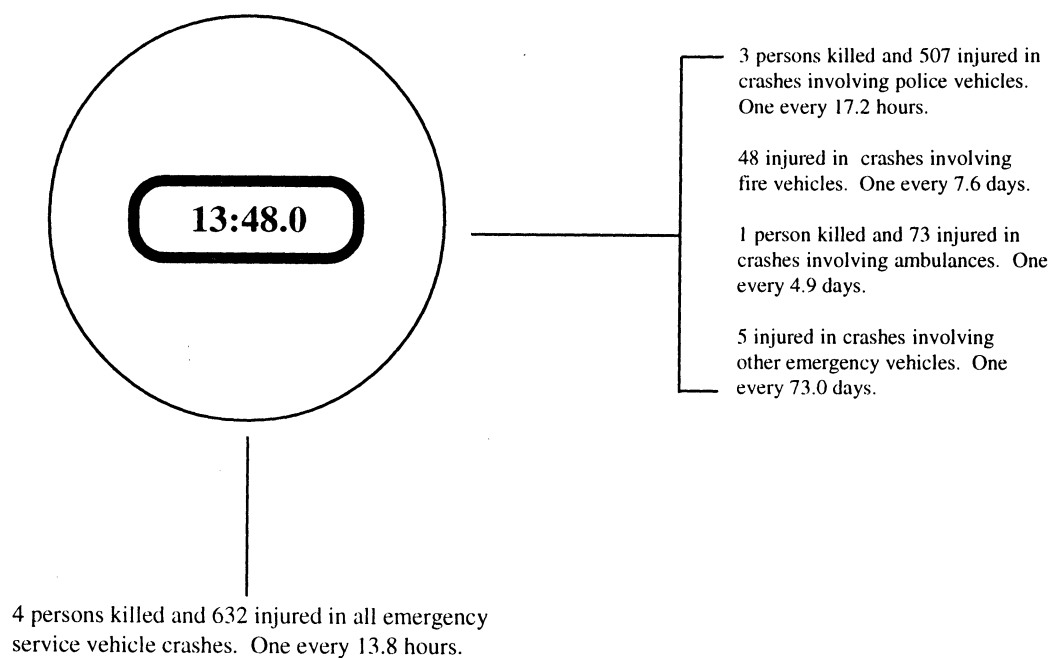
1996 - 1998



**FIGURE 1.0.1**

## MISSOURI EMERGENCY SERVICE VEHICLE PERSONAL INJURY PROBLEM ANALYSIS CLOCK

1998



**FIGURE 1.0.2**

**1998 MISSOURI EMERGENCY SERVICE (ES) VEHICLE CRASHES**

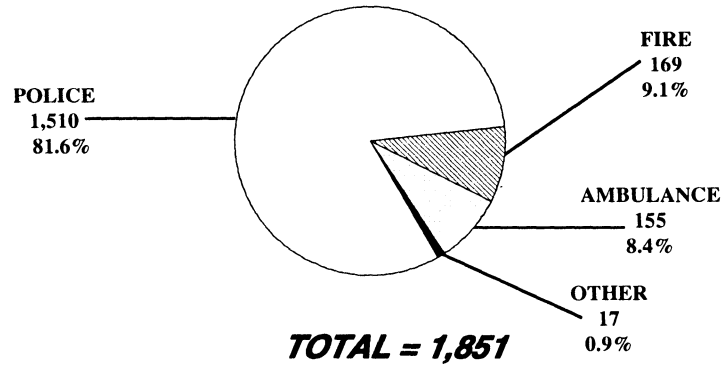
**TYPE OF EMERGENCY SERVICE VEHICLE INVOLVED**

	<b>FATAL</b>	<b>PERSONAL INJURY</b>	<b>PROPERTY DAMAGE</b>	<b>TOTAL</b>	<b>NUMBER OF ES VEHICLES INVOLVED<sup>1</sup></b>
<b>TOTAL NUMBER OF ES VEHICLE CRASHES</b>	<b>4</b>	<b>379</b>	<b>1,429</b>	<b>1,812</b>	<b>1,851</b>
<b>INVOLVING</b>					
POLICE VEHICLE	3	308	1,177	1,488	1,510
FIRE VEHICLE	0	28	138	166	169
AMBULANCE	1	41	111	153	155
OTHER ES VEHICLE	0	3	14	17	17

<sup>1</sup>The number of emergency service vehicles involved does not equal the number of emergency service traffic crashes since there are cases where more than one emergency service vehicle was involved in the same traffic crash. There were 1,812 traffic crashes involving 1,851 emergency service vehicles

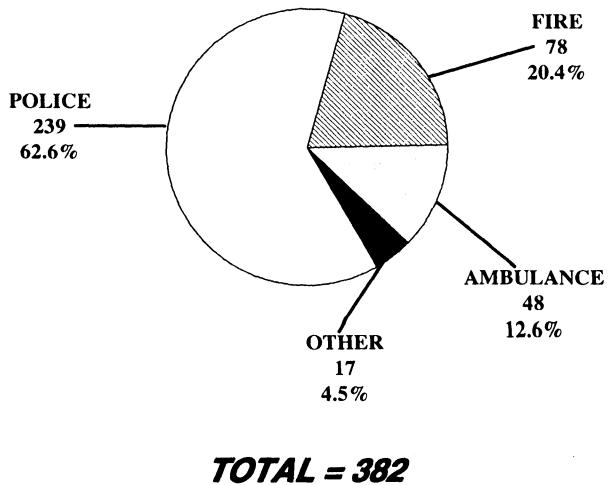
**TABLE 1.0.2**

**TYPE OF EMERGENCY SERVICE VEHICLES INVOLVED IN  
1998 MISSOURI TRAFFIC CRASHES**



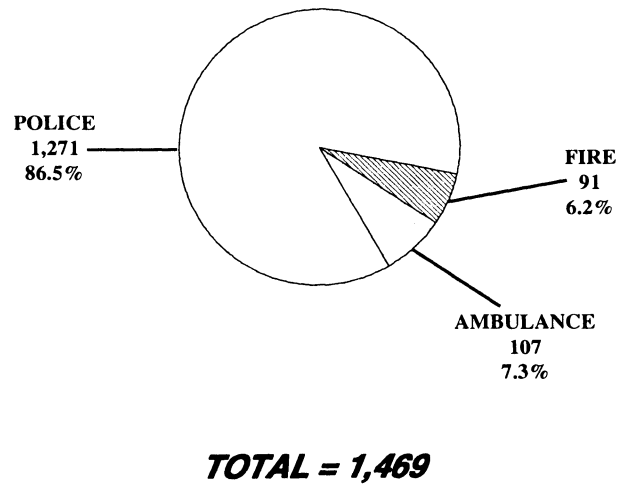
**FIGURE 1.0.3**

**TYPE OF EMERGENCY SERVICE  
VEHICLES INVOLVED IN 1998 MISSOURI  
TRAFFIC CRASHES WHILE ON  
EMERGENCY RUN**



**FIGURE 1.0.4**

**TYPE OF EMERGENCY SERVICE  
VEHICLES INVOLVED IN 1998 MISSOURI  
TRAFFIC CRASHES NOT ON  
EMERGENCY RUN**



**FIGURE 1.0.5**



## 2.0 POLICE VEHICLE INVOLVEMENT

*This section presents a series of data displays which identify police vehicle involvement in Missouri's traffic crash activity. Police vehicle traffic crashes are defined as any crash in which one or more police vehicles were directly involved in the incident. Data displays also are provided which describe characteristics of the police vehicle drivers involved in these traffic crashes.*

### 1998 SUMMARY ANALYSIS

- In 1998, there were 1,488 traffic crashes involving one or more police vehicles in the State of Missouri. Three persons were killed and 507 were injured in these crashes.
- In 15.6% of the traffic crashes involving police vehicles, the police vehicle was on an emergency run at the time of the incident.
- In 1998, one person was killed or injured in a police vehicle related crash every 17.2 hours in the State of Missouri.
- Of all 1998 crashes involving police vehicles, the first harmful event in 55.4% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 17.7% of the cases, it involved a motor vehicle striking a fixed object. In 13.4% of the cases, the vehicle struck a parked vehicle.
- Of all 1998 crashes involving police vehicles, 63.1% occurred in an urban area of the State and 36.9% occurred in a rural area. All of the fatal crashes occurred in a rural area.
- Of all police vehicle drivers involved in 1998 traffic crashes, 89.9% were male and 10.1% were female. The average age of the police vehicle driver was 33.9 years.
- There were 1,510 police vehicles involved in the 1,488 traffic crashes in the State. Of these, 1,402 or 92.9% were automobiles.



# 1998 POLICE VEHICLE INVOLVED CRASHES

## EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER <sup>1</sup>		POLICE VEHICLE DRIVERS/PASSENGERS <sup>2</sup>	
									KILLED	INJURED	KILLED	INJURED
POLICE VEHICLE ON RUN	2	66.7	59	19.2	171	14.5	232	15.6	2	110	0	63
POLICE VEHICLE NOT ON RUN	1	33.3	249	80.8	1,006	85.5	1,256	84.4	1	397	0	225
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>	<b>3</b>	<b>507</b>	<b>0</b>	<b>288</b>

<sup>1</sup>This statistic indicates the total number of persons killed and injured in a crash where one or more police vehicles were involved.

<sup>2</sup>This statistic indicates the number of police vehicle drivers and passengers killed and injured.

**TABLE 2.0.1**

### 1997 and 1998 POLICE VEHICLE INVOLVED CRASH ANALYSIS

	1997	1998	RATE OF CHANGE
FATAL	4	3	- 25.0
PERSONAL INJURY	353	308	- 12.7
PROPERTY DAMAGE	1,168	1,177	+ 0.8
TOTAL	1,525	1,488	- 2.4

**TABLE 2.0.2**

### 1998 POLICE VEHICLE INVOLVED CRASHES

#### CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	5	1.6	109	9.3	114	7.7
BICYCLIST	0	0.0	4	1.3	4	0.3	8	0.5
FIXED OBJECT	0	0.0	28	9.1	235	20.0	263	17.7
OTHER OBJECT	0	0.0	2	0.7	40	3.4	42	2.8
PEDESTRIAN	0	0.0	6	2.0	1	0.1	7	0.5
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	3	100.0	231	75.0	590	50.1	824	55.4
VEHICLE ON OTHER ROADWAY	0	0.0	0	0.0	2	0.2	2	0.1
PARKED VEHICLE	0	0.0	21	6.8	178	15.1	199	13.4
NON-COLLISION OVERTURN	0	0.0	4	1.3	2	0.2	6	0.4
NON-COLLISION OTHER	0	0.0	7	2.3	16	1.4	23	1.6
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

**TABLE 2.0.3**

**1998 POLICE VEHICLE INVOLVED CRASHES**

**AREA CLASSIFICATION BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
URBAN	0	0.0	221	71.8	718	61.0	939	63.1
RURAL	3	100.0	87	28.2	459	39.0	549	36.9
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

**TABLE 2.0.4**

**1998 POLICE VEHICLE INVOLVED CRASHES**

**ROAD CURVATURE BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
STRAIGHT	2	66.7	272	88.6	1,009	86.4	1,283	86.8
CURVE	1	33.3	35	11.4	159	13.6	195	13.2
UNKNOWN	0	-	1	-	9	-	10	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

**TABLE 2.0.5**

**1998 POLICE VEHICLE INVOLVED CRASHES**

**ROAD INCLINE BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
LEVEL	3	100.0	203	66.3	749	64.3	955	64.8
HILL	0	0.0	96	31.4	392	33.7	488	33.1
CREST	0	0.0	7	2.3	24	2.1	31	2.1
UNKNOWN	0	-	2	-	12	-	14	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

**TABLE 2.0.6**

# 1998 POLICE VEHICLE INVOLVED CRASHES

## ROAD CONDITIONS BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	2	66.7	223	72.9	896	76.5	1,121	75.7
WET	1	33.3	75	24.5	222	18.9	298	20.1
SNOW	0	0.0	3	1.0	13	1.1	16	1.1
ICE	0	0.0	5	1.6	38	3.2	43	2.9
MUD	0	0.0	0	0.0	3	0.3	3	0.2
UNKNOWN	0	-	2	-	5	-	7	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

TABLE 2.0.7

# 1998 POLICE VEHICLE INVOLVED CRASHES

## HIGHWAY CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	41	13.3	128	10.9	169	11.4
U.S. HIGHWAY	0	0.0	29	9.4	129	11.0	158	10.6
STATE NUMBERED	1	33.3	40	13.0	145	12.3	186	12.5
SINGLE STATE LETTERED	0	0.0	14	4.6	60	5.1	74	5.0
DOUBLE STATE LETTERED	1	33.3	2	0.7	25	2.1	28	1.9
OUTER ROAD	0	0.0	1	0.3	9	0.8	10	0.7
COUNTY ROAD	0	0.0	20	6.5	108	9.2	128	8.6
CITY STREET	1	33.3	152	49.4	507	43.1	660	44.4
INTERSTATE LOOP	0	0.0	1	0.3	4	0.3	5	0.3
OTHER <sup>1</sup>	0	0.0	8	2.6	62	5.3	70	4.7
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>308</b>	<b>100.0</b>	<b>1,177</b>	<b>100.0</b>	<b>1,488</b>	<b>100.0</b>

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 2.0.8

# 1998 POLICE VEHICLE INVOLVED CRASHES

## HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	26	11.8	68	9.5	94	10.0	0	0.0	15	17.2	60	13.1	75	13.7
U.S. HIGHWAY	0	0.0	17	7.7	58	8.1	75	8.0	0	0.0	12	13.8	71	15.5	83	15.1
STATE NUMBERED	0	0.0	15	6.8	60	8.4	75	8.0	1	33.3	25	28.7	85	18.5	111	20.2
SINGLE STATE LETTERED	0	0.0	5	2.3	12	1.7	17	1.8	0	0.0	9	10.3	48	10.5	57	10.4
DOUBLE STATE LETTERED	0	0.0	0	0.0	4	0.6	4	0.4	1	33.3	2	2.3	21	4.6	24	4.4
OUTER ROAD	0	0.0	1	0.5	5	0.7	6	0.6	0	0.0	0	0.0	4	0.9	4	0.7
COUNTY ROAD	0	0.0	7	3.2	24	3.3	31	3.3	0	0.0	13	14.9	84	18.3	97	17.7
CITY STREET	0	0.0	145	65.6	444	61.8	589	62.7	1	33.3	7	8.1	63	13.7	71	12.9
INTERSTATE LOOP	0	0.0	1	0.5	3	0.4	4	0.4	0	0.0	0	0.0	1	0.2	1	0.2
OTHER <sup>1</sup>	0	0.0	4	1.8	40	5.6	44	4.7	0	0.0	4	4.6	22	4.8	26	4.7
<b>TOTAL</b>	0	0.0	221	100.0	718	100.0	939	100.0	3	100.0	87	100.0	459	100.0	549	100.0

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

**TABLE 2.0.9**

### 1998 POLICE VEHICLE INVOLVED CRASHES MONTH OF YEAR

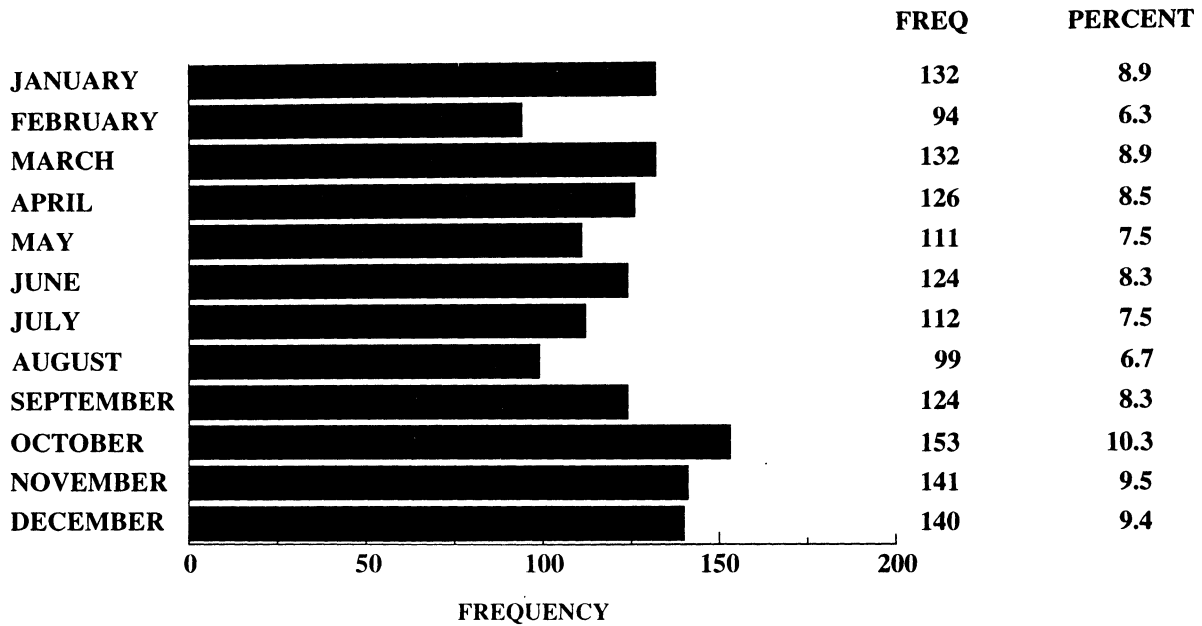


FIGURE 2.0.1

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### 1998 POLICE VEHICLE INVOLVED CRASHES DAY OF WEEK

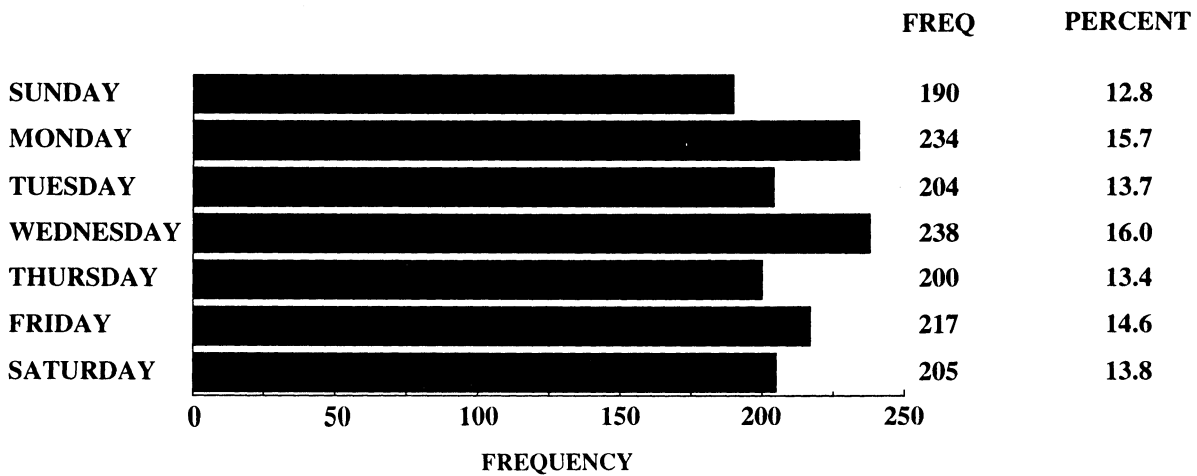
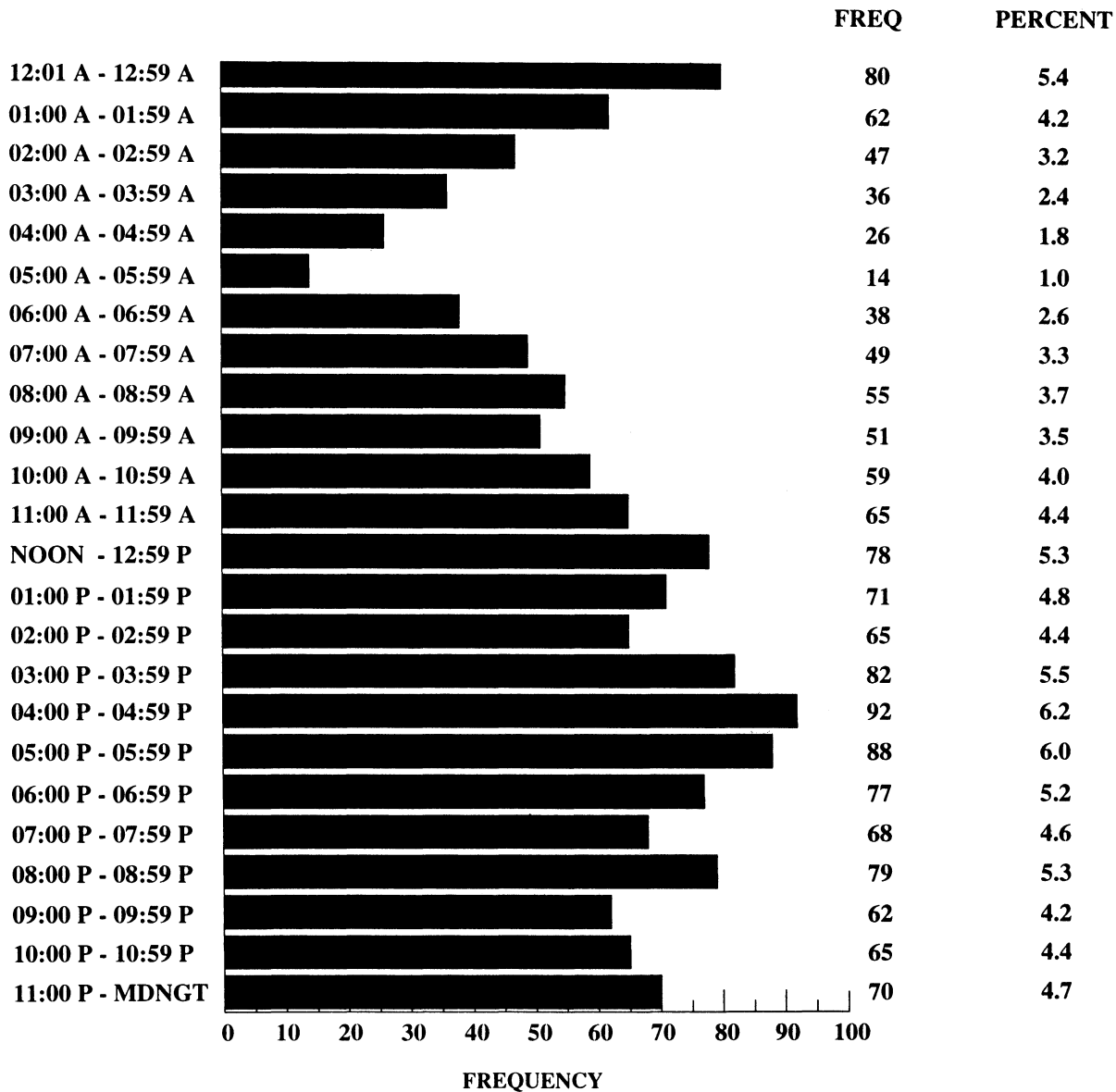


FIGURE 2.0.2

# **1998 POLICE VEHICLE INVOLVED CRASHES HOUR OF DAY**



UNKNOWN DATA NOT INCLUDED

**FIGURE 2.0.3**

# 1998 MISSOURI POLICE VEHICLE CRASHES

## TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION<sup>1</sup>

FATAL AND PERSONAL INJURY POLICE VEHICLE CRASHES = 311				TOTAL POLICE VEHICLE CRASHES = 1,488		
	DRIVER OF POLICE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF POLICE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	0.3	1.9	2.2	0.8	1.8	2.6
ACCIDENT AHEAD	1.9	1.9	3.5	0.5	1.1	1.5
CONGESTION AHEAD	1.0	1.3	1.9	1.7	1.5	2.4
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	9.6	12.9	22.5	6.5	7.7	14.2
IMPROPER PASSING	0.0	1.6	1.6	0.3	0.9	1.1
VIOLATION OF STOP SIGN	1.6	10.0	11.6	0.8	3.8	4.6
WRONG SIDE NOT PASSING	0.6	2.3	2.9	0.5	0.9	1.4
FOLLOWING TOO CLOSE	1.9	5.8	7.7	1.6	2.7	4.3
IMPROPER SIGNAL	0.0	0.0	0.0	0.1	0.1	0.2
IMPROPER BACKING	0.0	1.9	1.9	1.7	4.0	5.7
IMPROPER TURN	0.3	1.6	1.9	0.9	1.7	2.6
IMPROPER LANE USAGE / CHANGE	1.0	3.9	4.8	0.7	2.8	3.5
WRONG WAY ONE-WAY STREET	0.0	0.3	0.3	0.0	0.3	0.3
IMPROPER START FROM PARK	0.3	0.3	0.6	0.1	0.3	0.4
IMPROPERLY PARKED	0.0	0.6	0.6	0.3	1.1	1.4
FAILED TO YIELD	4.2	23.2	26.4	2.6	13.1	15.3
DRINKING	0.0	7.4	7.4	0.1	4.8	4.9
DRUGS	0.0	1.3	1.3	0.0	0.9	0.9
PHYSICAL IMPAIRMENT	0.6	2.6	3.2	0.3	1.0	1.3
INATTENTION	15.4	48.2	60.1	21.7	33.3	52.3

<sup>1</sup>This table identifies the percentage of crashes involving one or more police vehicles having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his police vehicle as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1998 Missouri police vehicle crashes, it was found that a police vehicle driver was speeding in 6.5% of the crashes. In 7.7% of the crashes another driver was speeding. In 14.2% of the crashes either a police vehicle driver, another driver, or both drivers were speeding.

**TABLE 2.0.10**



**POLICE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES**

**TYPE OF VEHICLE BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
AUTOMOBILE	3	100.0	281	89.2	1,118	93.9	1,402	92.9
SPORT UTILITY VEHICLE	0	0.0	2	0.6	13	1.1	15	1.0
VAN / SMALL BUS	0	0.0	18	5.7	36	3.0	54	3.6
SCHOOL BUS	0	0.0	0	0.0	1	0.1	1	0.1
MOTORCYCLE	0	0.0	9	2.9	4	0.3	13	0.9
BICYCLE	0	0.0	2	0.6	0	0.0	2	0.1
MOTORHOME	0	0.0	0	0.0	1	0.1	1	0.1
FARM EQUIPMENT	0	0.0	0	0.0	1	0.1	1	0.1
OTHER TRANSPORT DEVICE	0	0.0	0	0.0	1	0.1	1	0.1
PICK-UP TRUCK	0	0.0	3	1.0	12	1.0	15	1.0
OTHER TRUCK	0	0.0	0	0.0	4	0.3	4	0.3
UNKNOWN	0	-	1	-	0	-	1	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>316</b>	<b>100.0</b>	<b>1,191</b>	<b>100.0</b>	<b>1,510</b>	<b>100.0</b>

**TABLE 2.0.11**

**POLICE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES**

**DRIVER INVOLVEMENT BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
DRIVERLESS	0	0.0	19	6.0	159	13.4	178	11.8
KNOWN DRIVER INVOLVED	3	100.0	296	93.7	1,029	86.4	1,328	88.0
UNKNOWN DRIVER INVOLVED	0	0.0	1	0.3	3	0.2	4	0.3
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>316</b>	<b>100.0</b>	<b>1,191</b>	<b>100.0</b>	<b>1,510</b>	<b>100.0</b>

**TABLE 2.0.12**

# DRIVERS OF POLICE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES

## SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	3	100.0	262	88.5	929	90.3	1,194	89.9
FEMALE	0	0.0	34	11.5	100	9.7	134	10.1
UNKNOWN	0	-	1	-	3	-	4	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>297</b>	<b>100.0</b>	<b>1,032</b>	<b>100.0</b>	<b>1,332</b>	<b>100.0</b>

TABLE 2.0.13

# DRIVERS OF POLICE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES

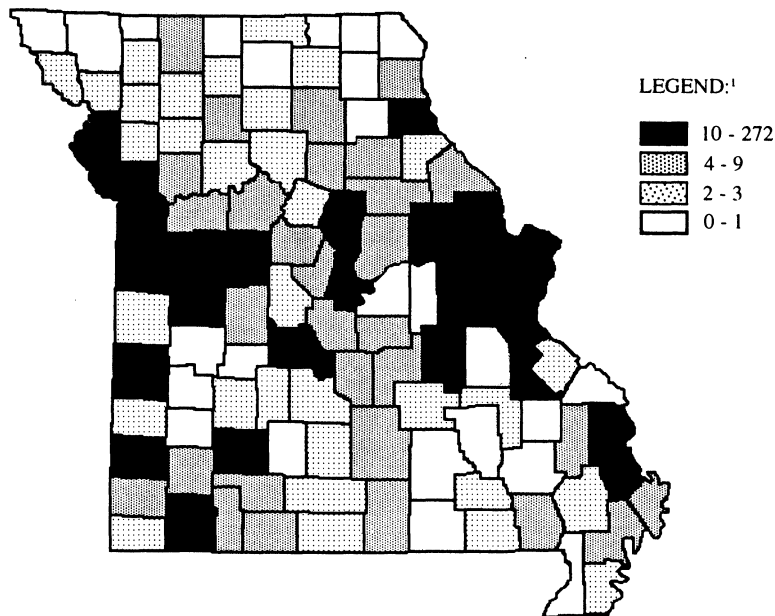
## AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
<b>AVERAGE AGE OF DRIVER</b>	<b>35.0</b>	<b>-</b>	<b>33.6</b>	<b>-</b>	<b>34.0</b>	<b>-</b>	<b>33.9</b>	<b>-</b>
15 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
16 - 20 YEARS	0	0.0	3	1.0	9	0.9	12	0.9
21 - 25 YEARS	1	33.3	39	13.3	180	17.6	220	16.7
26 - 30 YEARS	0	0.0	90	30.6	288	28.2	378	28.7
31 - 35 YEARS	0	0.0	62	21.1	197	19.3	259	19.7
36 - 40 YEARS	1	33.3	36	12.2	94	9.2	131	9.9
41 - 45 YEARS	1	33.3	33	11.2	107	10.5	141	10.7
46 - 50 YEARS	0	0.0	20	6.8	66	6.5	86	6.5
51 - 55 YEARS	0	0.0	7	2.4	44	4.3	51	3.9
56 - 60 YEARS	0	0.0	4	1.4	24	2.4	28	2.1
61 - 65 YEARS	0	0.0	0	0.0	6	0.6	6	0.5
66 YEARS AND OVER	0	0.0	0	0.0	6	0.6	6	0.5
UNKNOWN	0	-	3	-	11	-	14	-
<b>TOTAL</b>	<b>3</b>	<b>100.0</b>	<b>297</b>	<b>100.0</b>	<b>1,032</b>	<b>100.0</b>	<b>1,332</b>	<b>100.0</b>

TABLE 2.0.14

# 1998 POLICE VEHICLE INVOLVED CRASHES

## COUNTY QUARTILE ANALYSIS



<sup>1</sup>LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	ST. LOUIS	272	18.3	20.5	CAPE GIRARDEAU	12	0.8
2.0	JACKSON	256	17.2	25.0	HENRY	10	0.7
3.0	ST. LOUIS CITY	205	13.8	25.0	LINCOLN	10	0.7
4.0	ST. CHARLES	68	4.6	25.0	MONTGOMERY	10	0.7
5.0	JEFFERSON	41	2.8	25.0	ST. FRANCOIS	10	0.7
6.0	CLAY	39	2.6	25.0	SCOTT	10	0.7
7.0	GREENE	38	2.6	25.0	VERNON	10	0.7
8.0	BOONE	26	1.7	25.0	WARREN	10	0.7
9.0	FRANKLIN	23	1.5				First Quartile
10.5	JASPER	21	1.4				Second Quartile
10.5	PLATTE	21	1.4	29.5	BUTLER	9	0.6
12.0	CASS	18	1.2	29.5	RANDOLPH	9	0.6
13.0	JOHNSON	17	1.1	32.0	LAFAYETTE	8	0.5
14.0	COLE	16	1.1	32.0	PHELPS	8	0.5
16.0	BUCHANAN	15	1.0	32.0	RAY	8	0.5
16.0	CRAWFORD	15	1.0	36.0	CALLAWAY	7	0.5
16.0	MARION	15	1.0	36.0	COOPER	7	0.5
18.0	PETTIS	14	0.9	36.0	NEW MADRID	7	0.5
19.0	CAMDEN	13	0.9	36.0	NEWTON	7	0.5
20.5	BARRY	12	0.8				

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
36.0	STONE	7	0.5	81.0	DALLAS	2	0.1
40.0	MILLER	6	0.4	81.0	DAVIESS	2	0.1
40.0	PULASKI	6	0.4	81.0	DENT	2	0.1
40.0	TANEY	6	0.4	81.0	GENTRY	2	0.1
45.0	AUDRAIN	5	0.3	81.0	GRUNDY	2	0.1
45.0	BENTON	5	0.3	81.0	HOLT	2	0.1
45.0	CHRISTIAN	5	0.3	81.0	HOWARD	2	0.1
45.0	HARRISON	5	0.3	81.0	LACLEDE	2	0.1
45.0	HOWELL	5	0.3	81.0	MC DONALD	2	0.1
45.0	LAWRENCE	5	0.3	81.0	MORGAN	2	0.1
45.0	SALINE	5	0.3	81.0	OZARK	2	0.1
54.0	BOLLINGER	4	0.3	81.0	POLK	2	0.1
54.0	LEWIS	4	0.3	81.0	PUTNAM	2	0.1
54.0	LIVINGSTON	4	0.3	81.0	RALLS	2	0.1
54.0	MACON	4	0.3	81.0	RIPLEY	2	0.1
54.0	MARIES	4	0.3	Third Quartile			
54.0	MISSISSIPPI	4	0.3	Fourth Quartile			
54.0	MONITEAU	4	0.3	97.5	ATCHISON	1	0.1
54.0	MONROE	4	0.3	97.5	CLARK	1	0.1
54.0	PERRY	4	0.3	97.5	DUNKLIN	1	0.1
54.0	PIKE	4	0.3	97.5	MADISON	1	0.1
54.0	TEXAS	4	0.3	97.5	MERCER	1	0.1
Second Quartile				97.5	NODAWAY	1	0.1
Third Quartile				97.5	ST. CLAIR	1	0.1
65.0	ANDREW	3	0.2	97.5	SCOTLAND	1	0.1
65.0	CALDWELL	3	0.2	97.5	WASHINGTON	1	0.1
65.0	CLINTON	3	0.2	97.5	WAYNE	1	0.1
65.0	DE KALB	3	0.2	97.5	WEBSTER	1	0.1
65.0	DOUGLAS	3	0.2	97.5	WORTH	1	0.1
65.0	IRON	3	0.2	109.5	CEDAR	0	0.0
65.0	LINN	3	0.2	109.5	DADE	0	0.0
65.0	PEMISCOT	3	0.2	109.5	GASCONADE	0	0.0
65.0	STE. GENEVIEVE	3	0.2	109.5	HICKORY	0	0.0
65.0	STODDARD	3	0.2	109.5	KNOX	0	0.0
65.0	WRIGHT	3	0.2	109.5	OREGON	0	0.0
81.0	ADAIR	2	0.1	109.5	OSAGE	0	0.0
81.0	BARTON	2	0.1	109.5	REYNOLDS	0	0.0
81.0	BATES	2	0.1	109.5	SCHUYLER	0	0.0
81.0	CARROLL	2	0.1	109.5	SHANNON	0	0.0
81.0	CARTER	2	0.1	109.5	SHELBY	0	0.0
81.0	CHARITON	2	0.1	109.5	SULLIVAN	0	0.0

TABLE 2.0.15



### 3.0 FIRE VEHICLE INVOLVEMENT

*This section presents a series of data displays which identify fire vehicle involvement in Missouri's traffic crash activity. Fire vehicle traffic crashes are defined as any crash in which one or more fire vehicles were directly involved in the incident. Data displays also are provided which describe characteristics of the fire vehicle drivers involved in these traffic crashes.*

#### 1998 SUMMARY ANALYSIS

- In 1998, there were 166 traffic crashes involving one or more fire vehicles in the State of Missouri. No people were killed and 48 were injured in these crashes.
- In 45.8% of the traffic crashes involving fire vehicles, the fire vehicle was on an emergency run at the time of the incident.
- In 1998, one person was killed or injured in a fire vehicle related crash every 7.6 days in the State of Missouri.
- Of all 1998 crashes involving fire vehicles, the first harmful event in 66.9% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 21.1% of the cases, it involved a motor vehicle striking a parked vehicle. In 7.8% of the cases, the vehicle struck a fixed object.
- Of all 1998 crashes involving fire vehicles, 72.9% occurred in an urban area of the State and 27.1% occurred in a rural area.
- Of all fire vehicle drivers involved in 1998 traffic crashes, 96.0% were male and 4.0% were female. The average age of the fire vehicle driver was 38.4 years.

# 1998 FIRE VEHICLE INVOLVED CRASHES

## EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER <sup>1</sup>		FIRE VEHICLE DRIVERS/PASSENGERS <sup>2</sup>	
									KILLED	INJURED	KILLED	INJURED
FIRE VEHICLE ON RUN	0	0.0	15	53.6	61	44.2	76	45.8	0	28	0	13
FIRE VEHICLE NOT ON RUN	0	0.0	13	46.4	77	55.8	90	54.2	0	20	0	6
<b>TOTAL</b>	0	0.0	28	100.0	138	100.0	166	100.0	0	48	0	19

<sup>1</sup>This statistic indicates the total number of persons killed and injured in a crash where one or more fire vehicles were involved.

<sup>2</sup>This statistic indicates the number of fire vehicle drivers and passengers killed and injured.

**TABLE 3.0.1**

### 1997 and 1998 FIRE VEHICLE INVOLVED CRASH ANALYSIS

	1997	1998	RATE OF CHANGE
FATAL	1	0	- 100.0
PERSONAL INJURY	38	28	- 26.3
PROPERTY DAMAGE	126	138	+ 9.5
TOTAL	165	166	+ 0.6

**TABLE 3.0.2**

### 1998 FIRE VEHICLE INVOLVED CRASHES

#### CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	0	0.0	1	0.7	1	0.6
BICYCLIST	0	0.0	0	0.0	0	0.0	0	0.0
FIXED OBJECT	0	0.0	1	3.6	12	8.7	13	7.8
OTHER OBJECT	0	0.0	0	0.0	0	0.0	0	0.0
PEDESTRIAN	0	0.0	1	3.6	0	0.0	1	0.6
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	0	0.0	24	85.7	87	63.0	111	66.9
VEHICLE ON OTHER ROADWAY	0	0.0	0	0.0	0	0.0	0	0.0
PARKED VEHICLE	0	0.0	1	3.6	34	24.6	35	21.1
NON-COLLISION OVERTURN	0	0.0	1	3.6	1	0.7	2	1.2
NON-COLLISION OTHER	0	0.0	0	0.0	3	2.2	3	1.8
<b>TOTAL</b>	0	0.0	28	100.0	138	100.0	166	100.0

**TABLE 3.0.3**



### 1998 FIRE VEHICLE INVOLVED CRASHES

#### AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	0	0.0	20	71.4	101	73.2	121	72.9
RURAL	0	0.0	8	28.6	37	26.8	45	27.1
<b>TOTAL</b>	0	0.0	28	100.0	138	100.0	166	100.0

**TABLE 3.0.4**

### 1998 FIRE VEHICLE INVOLVED CRASHES

#### ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	0	0.0	19	67.9	122	91.7	141	87.6
CURVE	0	0.0	9	32.1	11	8.3	20	12.4
UNKNOWN	0	-	0	-	5	-	5	-
<b>TOTAL</b>	0	0.0	28	100.0	138	100.0	166	100.0

**TABLE 3.0.5**

### 1998 FIRE VEHICLE INVOLVED CRASHES

#### ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	0	0.0	17	60.7	105	78.4	122	75.3
HILL	0	0.0	11	39.3	28	20.9	39	24.1
CREST	0	0.0	0	0.0	1	0.8	1	0.6
UNKNOWN	0	-	0	-	4	-	4	-
<b>TOTAL</b>	0	0.0	28	100.0	138	100.0	166	100.0

**TABLE 3.0.6**

**1998 FIRE VEHICLE INVOLVED CRASHES**

**ROAD CONDITIONS BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
DRY	0	0.0	14	50.0	99	72.8	113	68.9
WET	0	0.0	9	32.1	29	21.3	38	23.2
SNOW	0	0.0	0	0.0	1	0.7	1	0.6
ICE	0	0.0	5	17.9	7	5.2	12	7.3
MUD	0	0.0	0	0.0	0	0.0	0	0.0
UNKNOWN	0	-	0	-	2	-	2	-
<b>TOTAL</b>	<b>0</b>	<b>0.0</b>	<b>28</b>	<b>100.0</b>	<b>138</b>	<b>100.0</b>	<b>166</b>	<b>100.0</b>

**TABLE 3.0.7**

**1998 FIRE VEHICLE INVOLVED CRASHES**

**HIGHWAY CLASSIFICATION BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
INTERSTATE	0	0.0	2	7.1	11	8.0	13	7.8
U.S. HIGHWAY	0	0.0	5	17.9	6	4.4	11	6.6
STATE NUMBERED	0	0.0	4	14.3	11	8.0	15	9.0
SINGLE STATE LETTERED	0	0.0	4	14.3	5	3.6	9	5.4
DOUBLE STATE LETTERED	0	0.0	0	0.0	2	1.5	2	1.2
OUTER ROAD	0	0.0	0	0.0	2	1.5	2	1.2
COUNTY ROAD	0	0.0	1	3.6	13	9.4	14	8.4
CITY STREET	0	0.0	12	42.9	84	60.9	96	57.8
INTERSTATE LOOP	0	0.0	0	0.0	1	0.7	1	0.6
OTHER <sup>1</sup>	0	0.0	0	0.0	3	2.2	3	1.8
<b>TOTAL</b>	<b>0</b>	<b>0.0</b>	<b>28</b>	<b>100.0</b>	<b>138</b>	<b>100.0</b>	<b>166</b>	<b>100.0</b>

<sup>1</sup>"Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

**TABLE 3.0.8**

# 1998 FIRE VEHICLE INVOLVED CRASHES

## HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	1	5.0	7	6.9	8	6.6	0	0.0	1	12.5	4	10.8	5	11.1
U.S. HIGHWAY	0	0.0	4	20.0	5	5.0	9	7.4	0	0.0	1	12.5	1	2.7	2	4.4
STATE NUMBERED	0	0.0	2	10.0	5	5.0	7	5.8	0	0.0	2	25.0	6	16.2	8	17.8
SINGLE STATE LETTERED	0	0.0	1	5.0	1	1.0	2	1.7	0	0.0	3	37.5	4	10.8	7	15.6
DOUBLE STATE LETTERED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	5.4	2	4.4
OUTER ROAD	0	0.0	0	0.0	1	1.0	1	0.8	0	0.0	0	0.0	1	2.7	1	2.2
COUNTY ROAD	0	0.0	0	0.0	3	3.0	3	2.5	0	0.0	1	12.5	10	27.0	11	24.4
CITY STREET	0	0.0	12	60.0	78	77.2	90	74.4	0	0.0	0	0.0	6	16.2	6	13.3
INTERSTATE LOOP	0	0.0	0	0.0	1	1.0	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0
OTHER <sup>1</sup>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	8.1	3	6.7
<b>TOTAL</b>	<b>0</b>	<b>0.0</b>	<b>20</b>	<b>100.0</b>	<b>101</b>	<b>100.0</b>	<b>121</b>	<b>100.0</b>	<b>0</b>	<b>0.0</b>	<b>8</b>	<b>100.0</b>	<b>37</b>	<b>100.0</b>	<b>45</b>	<b>100.0</b>

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

**TABLE 3.0.9**

### 1998 FIRE VEHICLE INVOLVED CRASHES MONTH OF YEAR

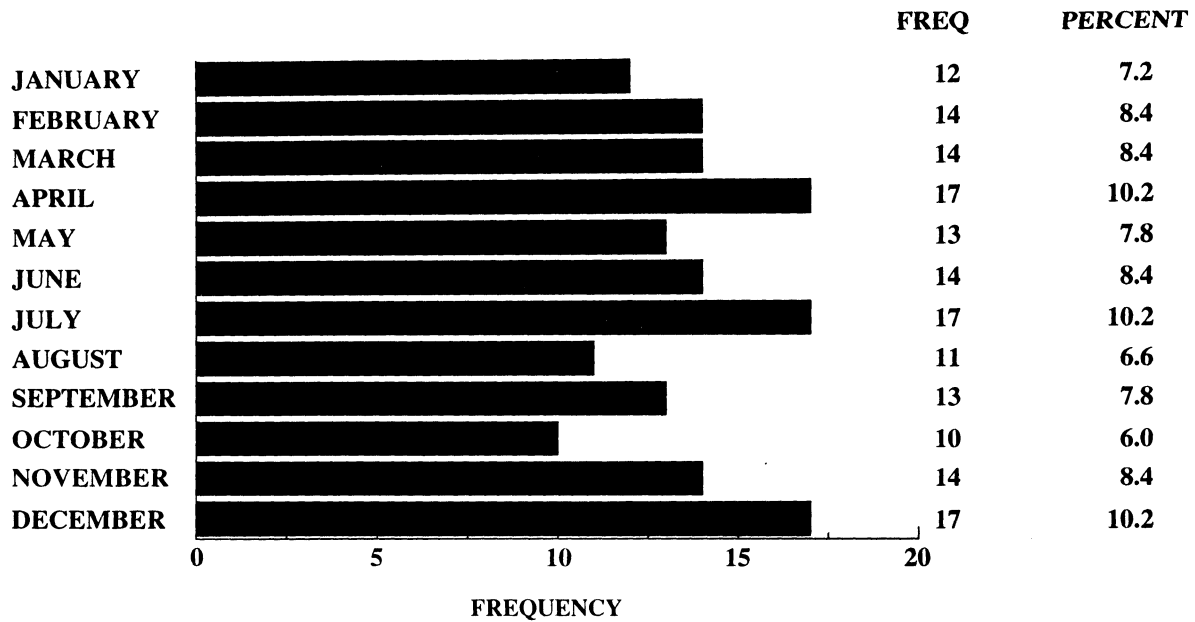


FIGURE 3.0.1

### 1998 FIRE VEHICLE INVOLVED CRASHES DAY OF WEEK

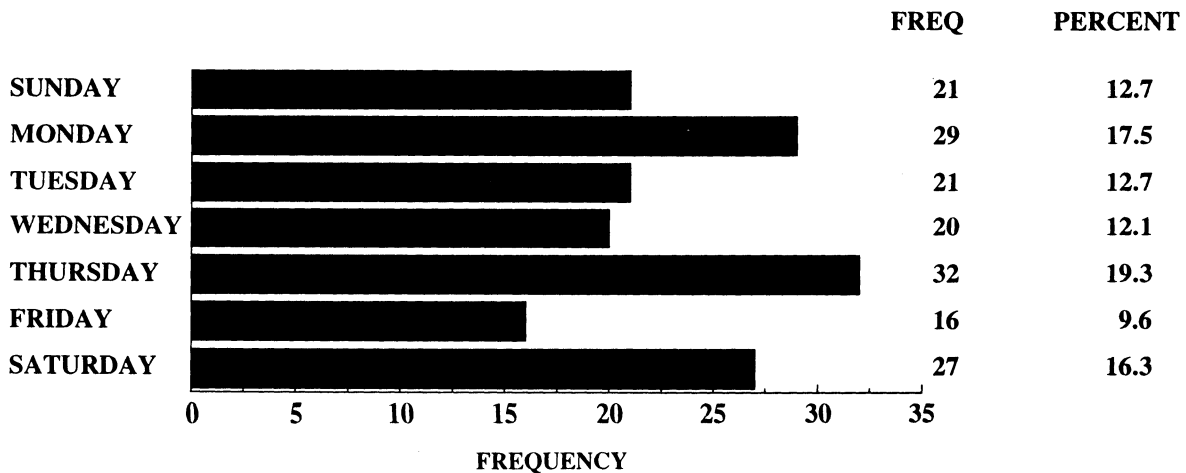
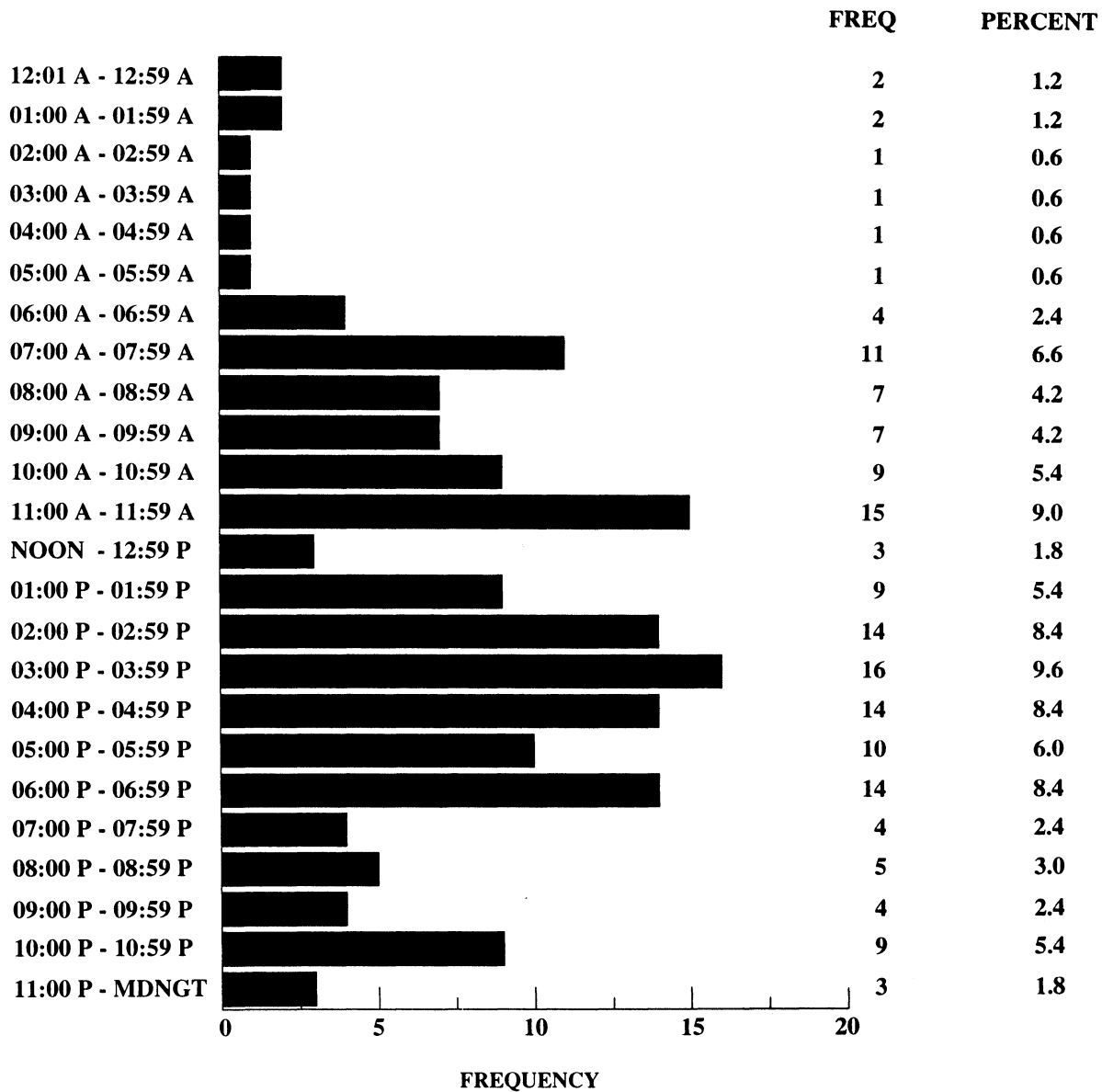


FIGURE 3.0.2

# **1998 FIRE VEHICLE INVOLVED CRASHES HOUR OF DAY**



**FIGURE 3.0.3**

# 1998 MISSOURI FIRE VEHICLE CRASHES

## TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION<sup>1</sup>

FATAL AND PERSONAL INJURY FIRE VEHICLE CRASHES = 28				TOTAL FIRE VEHICLE CRASHES = 166		
	DRIVER OF FIRE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF FIRE VEHICLE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	0.0	0.0	0.0	2.4	0.6	3.0
ACCIDENT AHEAD	0.0	0.0	0.0	0.6	0.6	0.6
CONGESTION AHEAD	7.1	3.6	7.1	5.4	1.8	6.0
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	10.7	10.7	21.4	4.2	4.8	9.0
IMPROPER PASSING	3.6	0.0	3.6	1.2	1.2	2.4
VIOLATION OF STOP SIGN	0.0	0.0	0.0	1.2	1.2	2.4
WRONG SIDE NOT PASSING	0.0	3.6	3.6	0.0	0.6	0.6
FOLLOWING TOO CLOSE	7.1	3.6	10.7	1.8	3.0	4.8
IMPROPER SIGNAL	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPER BACKING	0.0	0.0	0.0	3.0	0.0	3.0
IMPROPER TURN	0.0	0.0	0.0	1.8	1.2	3.0
IMPROPER LANE USAGE / CHANGE	3.6	3.6	7.2	2.4	0.6	3.0
WRONG WAY ONE-WAY STREET	0.0	0.0	0.0	0.0	0.6	0.6
IMPROPER START FROM PARK	0.0	0.0	0.0	0.6	0.0	0.6
IMPROPERLY PARKED	0.0	0.0	0.0	0.0	3.6	3.6
FAILED TO YIELD	10.7	28.6	39.3	3.0	18.1	21.1
DRINKING	0.0	0.0	0.0	0.0	0.6	0.6
DRUGS	0.0	0.0	0.0	0.0	0.0	0.0
PHYSICAL IMPAIRMENT	0.0	0.0	0.0	0.0	0.0	0.0
INATTENTION	32.1	35.7	60.7	26.5	27.1	48.8

<sup>1</sup>This table identifies the percentage of crashes involving one or more fire vehicles having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his fire vehicle as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1998 Missouri fire vehicle crashes, it was found that a fire vehicle driver was speeding in 4.2% of the crashes. In 4.8% of the crashes another driver was speeding. In 9.0% of the crashes either a fire vehicle driver, another driver, or both drivers were speeding.

TABLE 3.0.10

# **FIRE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES**

## **TYPE OF VEHICLE BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
AUTOMOBILE	0	0.0	6	20.7	15	10.9	21	12.6
SPORT UTILITY VEHICLE	0	0.0	2	6.9	7	5.1	9	5.4
VAN / SMALL BUS	0	0.0	0	0.0	4	2.9	4	2.4
OTHER TRANSPORT DEVICE	0	0.0	2	6.9	23	16.7	25	15.0
PICK-UP TRUCK	0	0.0	3	10.3	9	6.5	12	7.2
OTHER TRUCK	0	0.0	16	55.2	80	58.0	96	57.5
UNKNOWN	0	-	0	-	2	-	2	-
<b>TOTAL</b>	<b>0</b>	<b>0.0</b>	<b>29</b>	<b>100.0</b>	<b>140</b>	<b>100.0</b>	<b>169</b>	<b>100.0</b>

**TABLE 3.0.11**

# **FIRE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES**

## **DRIVER INVOLVEMENT BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
DRIVERLESS	0	0.0	1	3.5	15	10.7	16	9.5
KNOWN DRIVER INVOLVED	0	0.0	27	93.1	124	88.6	151	89.3
UNKNOWN DRIVER INVOLVED	0	0.0	1	3.5	1	0.7	2	1.2
<b>TOTAL</b>	<b>0</b>	<b>0.0</b>	<b>29</b>	<b>100.0</b>	<b>140</b>	<b>100.0</b>	<b>169</b>	<b>100.0</b>

**TABLE 3.0.12**

## DRIVERS OF FIRE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES

### SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	0	0.0	25	92.6	120	96.8	145	96.0
FEMALE	0	0.0	2	7.4	4	3.2	6	4.0
UNKNOWN	0	-	1	-	1	-	2	-
<b>TOTAL</b>	0	0.0	28	100.0	125	100.0	153	100.0

**TABLE 3.0.13**

## DRIVERS OF FIRE VEHICLES INVOLVED IN 1998 MISSOURI CRASHES

### AGE OF DRIVER BY CRASH SEVERITY

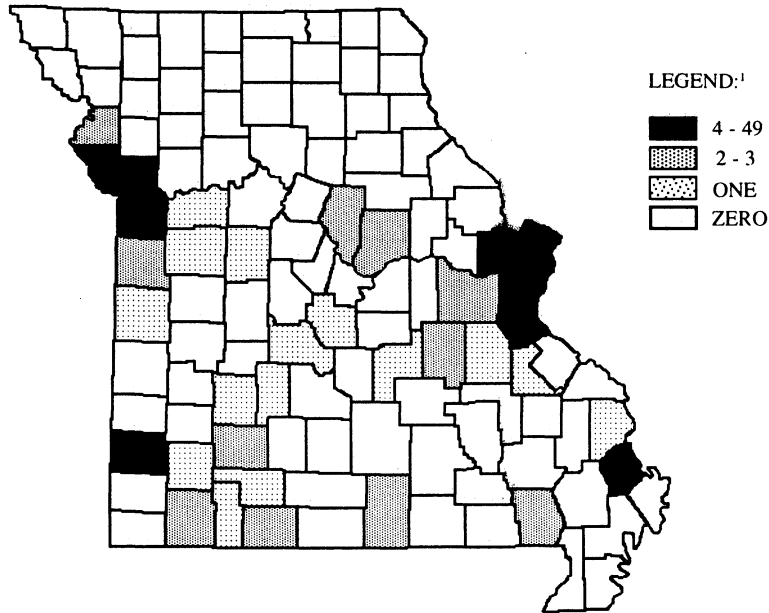
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
<b>AVERAGE AGE OF DRIVER</b>	0.0	-	41.0	-	37.9	-	38.4	-
15 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
16 - 20 YEARS	0	0.0	0	0.0	1	0.8	1	0.7
21 - 25 YEARS	0	0.0	3	11.1	14	11.4	17	11.3
26 - 30 YEARS	0	0.0	5	18.5	19	15.5	24	16.0
31 - 35 YEARS	0	0.0	4	14.8	25	20.3	29	19.3
36 - 40 YEARS	0	0.0	4	14.8	17	13.8	21	14.0
41 - 45 YEARS	0	0.0	2	7.4	19	15.5	21	14.0
46 - 50 YEARS	0	0.0	3	11.1	11	8.9	14	9.3
51 - 55 YEARS	0	0.0	1	3.7	13	10.6	14	9.3
56 - 60 YEARS	0	0.0	2	7.4	3	2.4	5	3.3
61 - 65 YEARS	0	0.0	2	7.4	0	0.0	2	1.3
66 YEARS AND OVER	0	0.0	1	3.7	1	0.8	2	1.3
UNKNOWN	0	-	1	-	2	-	3	-
<b>TOTAL</b>	0	0.0	28	100.0	125	100.0	153	100.0

**TABLE 3.0.14**



# 1998 FIRE VEHICLE INVOLVED CRASHES

## COUNTY QUARTILE ANALYSIS



<sup>1</sup>LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	JACKSON	49	29.5	17.0	GREENE	2	1.2
2.0	ST. LOUIS CITY	24	14.5	17.0	HOWELL	2	1.2
3.0	ST. LOUIS	20	12.0	17.0	TANEY	2	1.2
4.0	JEFFERSON	10	6.0	Second Quartile			
5.0	CLAY	6	3.6	Third Quartile			
7.5	JASPER	4	2.4	28.0	BATES	1	0.6
7.5	PLATTE	4	2.4	28.0	CAMDEN	1	0.6
7.5	ST. CHARLES	4	2.4	28.0	CAPE GIRARDEAU	1	0.6
7.5	SCOTT	4	2.4	28.0	CHRISTIAN	1	0.6
First Quartile				28.0	DALLAS	1	0.6
Second Quartile				28.0	JOHNSON	1	0.6
11.5	BUCHANAN	3	1.8	28.0	LAFAYETTE	1	0.6
11.5	BUTLER	3	1.8	28.0	LAWRENCE	1	0.6
11.5	CASS	3	1.8	28.0	MILLER	1	0.6
11.5	FRANKLIN	3	1.8	28.0	PETTIS	1	0.6
17.0	BARRY	2	1.2	28.0	PHELPS	1	0.6
17.0	BOONE	2	1.2	28.0	POLK	1	0.6
17.0	CALLAWAY	2	1.2	28.0	ST. FRANCOIS	1	0.6
17.0	CRAWFORD	2	1.2	28.0	STONE	1	0.6

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
28.0	WASHINGTON	1	0.6	75.5	MACON	0	0.0
Third Quartile				75.5	MADISON	0	0.0
Fourth Quartile				75.5	MARIES	0	0.0
75.5	ADAIR	0	0.0	75.5	MARION	0	0.0
75.5	ANDREW	0	0.0	75.5	MERCER	0	0.0
75.5	ATCHISON	0	0.0	75.5	MISSISSIPPI	0	0.0
75.5	AUDRAIN	0	0.0	75.5	MONITEAU	0	0.0
75.5	BARTON	0	0.0	75.5	MONROE	0	0.0
75.5	BENTON	0	0.0	75.5	MONTGOMERY	0	0.0
75.5	BOLLINGER	0	0.0	75.5	MORGAN	0	0.0
75.5	CALDWELL	0	0.0	75.5	NEW MADRID	0	0.0
75.5	CARROLL	0	0.0	75.5	NEWTON	0	0.0
75.5	CARTER	0	0.0	75.5	NODAWAY	0	0.0
75.5	CEDAR	0	0.0	75.5	OREGON	0	0.0
75.5	CHARITON	0	0.0	75.5	OSAGE	0	0.0
75.5	CLARK	0	0.0	75.5	OZARK	0	0.0
75.5	CLINTON	0	0.0	75.5	PEMISCOT	0	0.0
75.5	COLE	0	0.0	75.5	PERRY	0	0.0
75.5	COOPER	0	0.0	75.5	PIKE	0	0.0
75.5	DADE	0	0.0	75.5	PULASKI	0	0.0
75.5	DAVIESS	0	0.0	75.5	PUTNAM	0	0.0
75.5	DE KALB	0	0.0	75.5	RALLS	0	0.0
75.5	DENT	0	0.0	75.5	RANDOLPH	0	0.0
75.5	DOUGLAS	0	0.0	75.5	RAY	0	0.0
75.5	DUNKLIN	0	0.0	75.5	REYNOLDS	0	0.0
75.5	GASCONADE	0	0.0	75.5	RIPLEY	0	0.0
75.5	GENTRY	0	0.0	75.5	ST. CLAIR	0	0.0
75.5	GRUNDY	0	0.0	75.5	STE. GENEVIEVE	0	0.0
75.5	HARRISON	0	0.0	75.5	SALINE	0	0.0
75.5	HENRY	0	0.0	75.5	SCHUYLER	0	0.0
75.5	HICKORY	0	0.0	75.5	SCOTLAND	0	0.0
75.5	HOLT	0	0.0	75.5	SHANNON	0	0.0
75.5	HOWARD	0	0.0	75.5	SHELBY	0	0.0
75.5	IRON	0	0.0	75.5	STODDARD	0	0.0
75.5	KNOX	0	0.0	75.5	SULLIVAN	0	0.0
75.5	LACLEDE	0	0.0	75.5	TEXAS	0	0.0
75.5	LEWIS	0	0.0	75.5	VERNON	0	0.0
75.5	LINCOLN	0	0.0	75.5	WARREN	0	0.0
75.5	LINN	0	0.0	75.5	WAYNE	0	0.0
75.5	LIVINGSTON	0	0.0	75.5	WEBSTER	0	0.0
75.5	MC DONALD	0	0.0	75.5	WORTH	0	0.0
				75.5	WRIGHT	0	0.0

TABLE 3.0.15



## 4.0 AMBULANCE INVOLVEMENT

*This section presents a series of data displays which identify ambulance involvement in Missouri's traffic crash activity. Ambulance traffic crashes are defined as any crash in which one or more ambulances were directly involved in the incident. Data displays also are provided which describe characteristics of the ambulance drivers involved in these traffic crashes.*

### 1998 SUMMARY ANALYSIS

- In 1998, there were 153 traffic crashes involving one or more ambulances in the State of Missouri. One person was killed and 73 were injured in these crashes.
- In 31.4% of the traffic crashes involving ambulances, the ambulance was on an emergency run at the time of the incident.
- In 1998, one person was killed or injured in an ambulance related crash every 4.9 days in the State of Missouri.
- Of all 1998 crashes involving ambulances, the first harmful event in 69.3% of the cases involved one motor vehicle in transport striking another motor vehicle in transport. In 15.0% of the cases, it involved a motor vehicle striking a parked vehicle. In 11.1% of the cases, the vehicle struck a fixed object.
- Of all 1998 crashes involving ambulances, 73.9% occurred in an urban area of the State and 26.1% occurred in a rural area.
- Of all ambulance drivers involved in 1998 traffic crashes, 71.5% were male and 28.5% were female. The average age of the ambulance driver was 31.6 years.

# 1998 AMBULANCE INVOLVED CRASHES

## EMERGENCY RUN STATUS

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	TOTAL NUMBER <sup>1</sup>		AMBULANCE DRIVERS/PASSENGERS <sup>2</sup>	
									KILLED	INJURED	KILLED	INJURED
AMBULANCE ON RUN	0	0.0	16	39.0	32	28.8	48	31.4	0	27	0	8
AMBULANCE NOT ON RUN	1	100.0	25	61.0	79	71.2	105	68.6	1	46	0	29
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>	<b>1</b>	<b>73</b>	<b>0</b>	<b>37</b>

<sup>1</sup>This statistic indicates the total number of persons killed and injured in a crash where one or more ambulances were involved.

<sup>2</sup>This statistic indicates the number of ambulance drivers and passengers killed and injured.

**TABLE 4.0.1**

### 1997 and 1998 AMBULANCE INVOLVED CRASH ANALYSIS

	1997	1998	RATE OF CHANGE
FATAL	1	1	= 0.0
PERSONAL INJURY	41	41	= 0.0
PROPERTY DAMAGE	144	111	- 22.9
TOTAL	186	153	- 17.7

TABLE 4.0.2

### 1998 AMBULANCE INVOLVED CRASHES

#### CRASH TYPE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
ANIMAL	0	0.0	0	0.0	3	2.7	3	2.0
BICYCLIST	0	0.0	0	0.0	0	0.0	0	0.0
FIXED OBJECT	0	0.0	6	14.6	11	9.9	17	11.1
OTHER OBJECT	0	0.0	0	0.0	1	0.9	1	0.7
PEDESTRIAN	0	0.0	0	0.0	0	0.0	0	0.0
TRAIN	0	0.0	0	0.0	0	0.0	0	0.0
VEHICLE IN TRANSPORT	1	100.0	32	78.1	73	65.8	106	69.3
VEHICLE ON OTHER ROADWAY	0	0.0	0	0.0	1	0.9	1	0.7
PARKED VEHICLE	0	0.0	2	4.9	21	18.9	23	15.0
NON-COLLISION OVERTURN	0	0.0	1	2.4	1	0.9	2	1.3
NON-COLLISION OTHER	0	0.0	0	0.0	0	0.0	0	0.0
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

TABLE 4.0.3

# 1998 AMBULANCE INVOLVED CRASHES

## AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	1	100.0	29	70.7	83	74.8	113	73.9
RURAL	0	0.0	12	29.3	28	25.2	40	26.1
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

**TABLE 4.0.4**

# 1998 AMBULANCE INVOLVED CRASHES

## ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	1	100.0	36	87.8	101	91.8	138	90.8
CURVE	0	0.0	5	12.2	9	8.2	14	9.2
UNKNOWN	0	-	0	-	1	-	1	-
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

**TABLE 4.0.5**

# 1998 AMBULANCE INVOLVED CRASHES

## ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	1	100.0	28	70.0	82	73.9	111	73.0
HILL	0	0.0	11	27.5	27	24.3	38	25.0
CREST	0	0.0	1	2.5	2	1.8	3	2.0
UNKNOWN	0	-	1	-	0	-	1	-
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

**TABLE 4.0.6**

**1998 AMBULANCE INVOLVED CRASHES**  
**ROAD CONDITIONS BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
DRY	1	100.0	27	65.9	82	74.6	110	72.4
WET	0	0.0	12	29.3	25	22.7	37	24.3
SNOW	0	0.0	0	0.0	1	0.9	1	0.7
ICE	0	0.0	2	4.9	2	1.8	4	2.6
MUD	0	0.0	0	0.0	0	0.0	0	0.0
UNKNOWN	0	-	0	-	1	-	1	-
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

**TABLE 4.0.7**

**1998 AMBULANCE INVOLVED CRASHES**  
**HIGHWAY CLASSIFICATION BY CRASH SEVERITY**

	<b>FATAL</b>	<b>%</b>	<b>PERSONAL INJURY</b>	<b>%</b>	<b>PROPERTY DAMAGE</b>	<b>%</b>	<b>TOTAL</b>	<b>%</b>
INTERSTATE	0	0.0	11	26.8	4	3.6	15	9.8
U.S. HIGHWAY	0	0.0	3	7.3	17	15.3	20	13.1
STATE NUMBERED	0	0.0	5	12.2	13	11.7	18	11.8
SINGLE STATE LETTERED	1	100.0	1	2.4	1	0.9	3	2.0
DOUBLE STATE LETTERED	0	0.0	0	0.0	3	2.7	3	2.0
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	5	12.2	6	5.4	11	7.2
CITY STREET	0	0.0	15	36.6	64	57.7	79	51.6
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0
OTHER <sup>1</sup>	0	0.0	1	2.4	3	2.7	4	2.6
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>111</b>	<b>100.0</b>	<b>153</b>	<b>100.0</b>

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

**TABLE 4.0.8**



**1998 AMBULANCE INVOLVED CRASHES**

**HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY**

	URBAN								RURAL							
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	6	20.7	2	2.4	8	7.1	0	0.0	5	41.7	2	7.1	7	17.5
U.S. HIGHWAY	0	0.0	3	10.3	6	7.2	9	8.0	0	0.0	0	0.0	11	39.3	11	27.5
STATE NUMBERED	0	0.0	1	3.5	5	6.0	6	5.3	0	0.0	4	33.3	8	28.6	12	30.0
SINGLE STATE LETTERED	1	100.0	0	0.0	0	0.0	1	0.9	0	0.0	1	8.3	1	3.6	2	5.0
DOUBLE STATE LETTERED	0	0.0	0	0.0	3	3.6	3	2.7	0	0.0	0	0.0	0	0.0	0	0.0
OUTER ROAD	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
COUNTY ROAD	0	0.0	3	10.3	3	3.6	6	5.3	0	0.0	2	16.7	3	10.7	5	12.5
CITY STREET	0	0.0	15	51.7	61	73.5	76	67.3	0	0.0	0	0.0	3	10.7	3	7.5
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OTHER <sup>1</sup>	0	0.0	1	3.5	3	3.6	4	3.5	0	0.0	0	0.0	0	0.0	0	0.0
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>29</b>	<b>100.0</b>	<b>83</b>	<b>100.0</b>	<b>113</b>	<b>100.0</b>	<b>0</b>	<b>0.0</b>	<b>12</b>	<b>100.0</b>	<b>28</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

**TABLE 4.0.9**

### 1998 AMBULANCE INVOLVED CRASHES MONTH OF YEAR

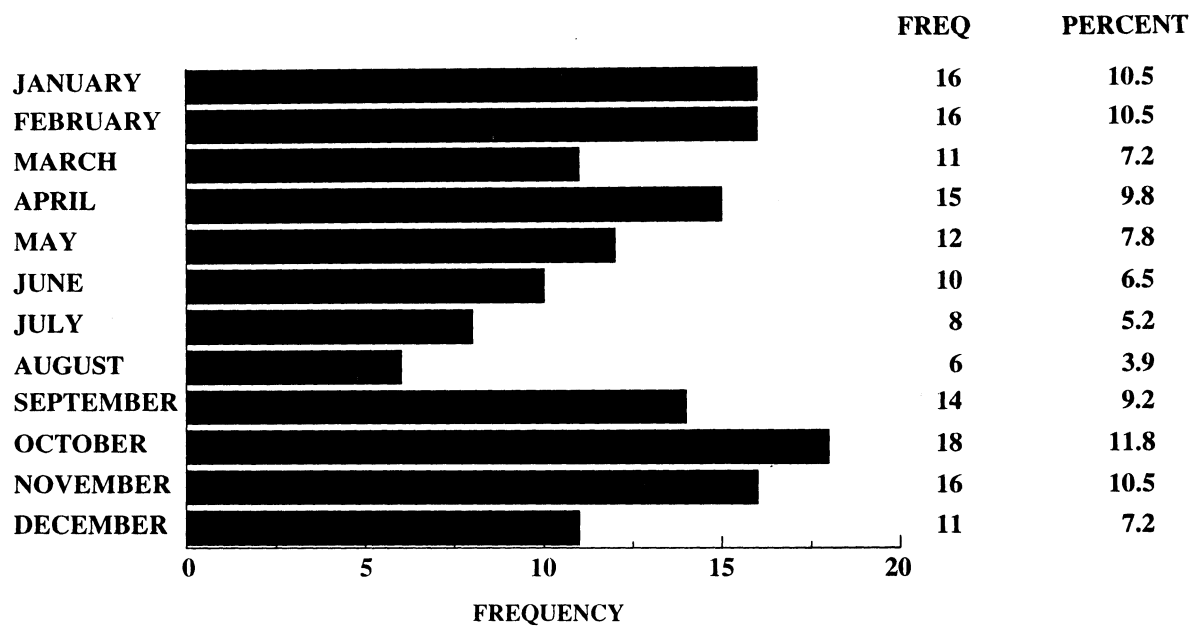


FIGURE 4.0.1

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### 1998 AMBULANCE INVOLVED CRASHES DAY OF WEEK

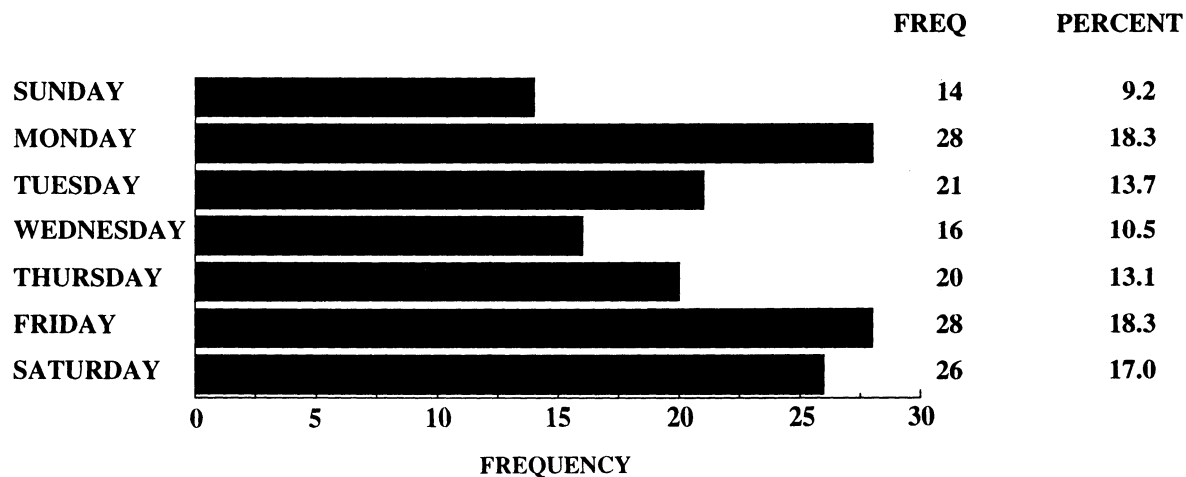
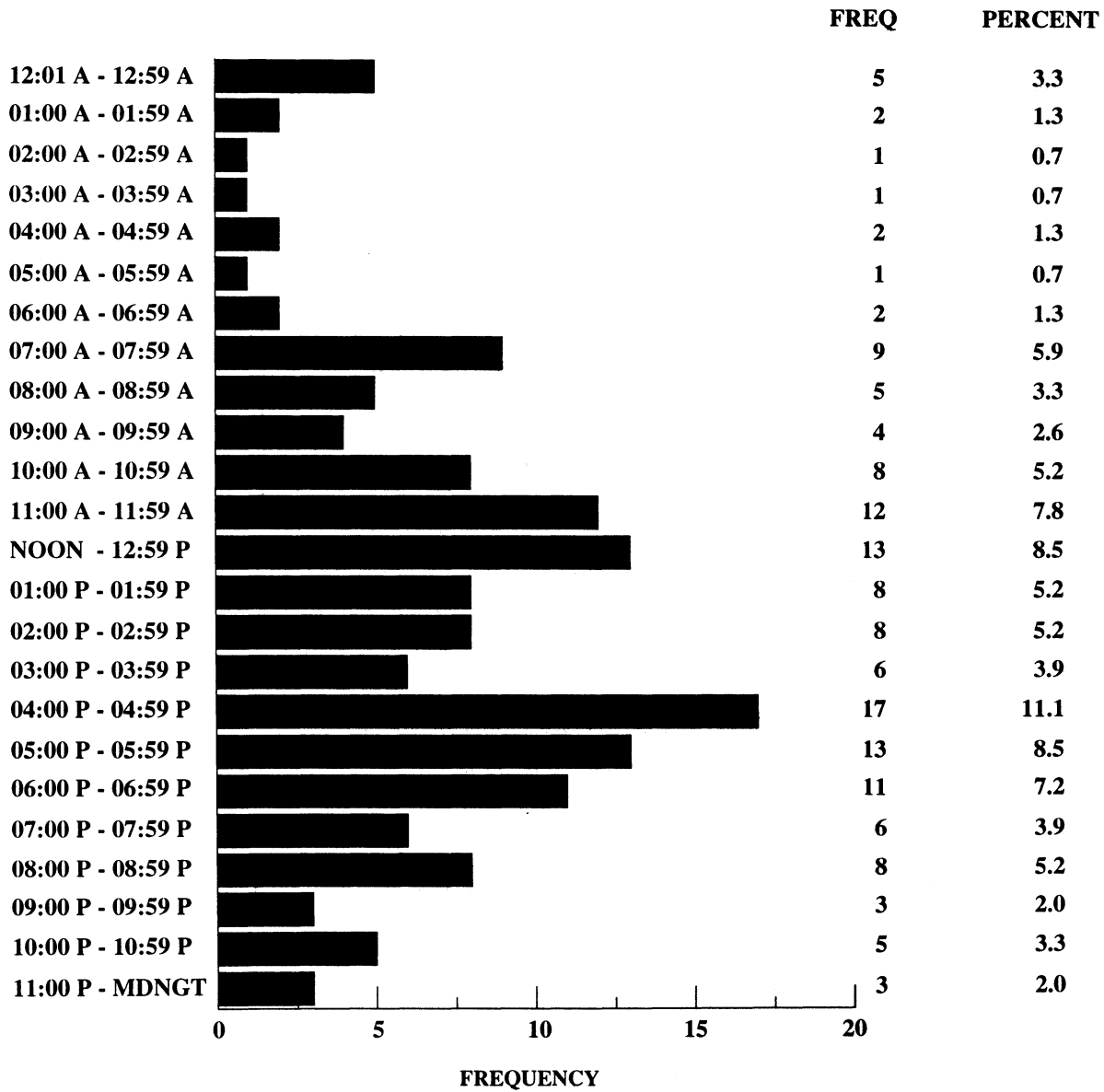


FIGURE 4.0.2

# **1998 AMBULANCE INVOLVED CRASHES HOUR OF DAY**



**FIGURE 4.0.3**

# 1998 MISSOURI AMBULANCE CRASHES

## TYPE OF CIRCUMSTANCE INVOLVED BY CRASH SEVERITY AND PERSON CLASSIFICATION<sup>1</sup>

FATAL AND PERSONAL INJURY AMBULANCE CRASHES = 42				TOTAL AMBULANCE CRASHES = 153		
	DRIVER OF AMBULANCE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL F & PI	DRIVER OF AMBULANCE/ VEHICLE	OTHER DRIVER/ VEHICLE/ PEDESTRIAN	TOTAL CRASHES
VEHICLE DEFECTS	2.4	0.0	2.4	3.9	1.3	5.2
ACCIDENT AHEAD	0.0	0.0	0.0	0.0	0.0	0.0
CONGESTION AHEAD	11.9	7.1	16.7	5.9	3.3	7.8
EXCEEDING SPEED LIMIT / TOO FAST FOR CONDITIONS	11.9	11.9	23.8	4.6	6.5	11.1
IMPROPER PASSING	0.0	0.0	0.0	0.7	0.0	0.7
VIOLATION OF STOP SIGN	2.4	2.4	4.8	2.0	0.7	2.6
WRONG SIDE NOT PASSING	0.0	2.4	2.4	0.7	0.7	1.3
FOLLOWING TOO CLOSE	4.8	2.4	7.2	3.3	3.9	7.2
IMPROPER SIGNAL	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPER BACKING	0.0	0.0	0.0	0.7	2.0	2.7
IMPROPER TURN	0.0	0.0	0.0	0.0	0.7	0.7
IMPROPER LANE USAGE / CHANGE	2.4	7.1	9.5	2.0	4.6	5.9
WRONG WAY ONE-WAY STREET	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPER START FROM PARK	0.0	0.0	0.0	0.0	0.0	0.0
IMPROPERLY PARKED	0.0	0.0	0.0	1.3	0.7	2.0
FAILED TO YIELD	0.0	31.0	31.0	0.0	19.6	19.6
DRINKING	2.4	2.4	4.8	0.7	0.7	1.3
DRUGS	0.0	0.0	0.0	0.0	0.0	0.0
PHYSICAL IMPAIRMENT	0.0	0.0	0.0	0.0	0.0	0.0
INATTENTION	14.3	35.7	47.6	23.5	34.6	56.2

<sup>1</sup>This table identifies the percentage of crashes involving one or more ambulances having a specific type of circumstance which contributed to the cause of the crash. This table further defines the percentage of crashes where the contributing circumstance was associated with the driver or his ambulance as well as those attributed to other persons and vehicles in the crash. For instance, when examining speed involvement in 1998 Missouri ambulance crashes, it was found that an ambulance driver was speeding in 4.6% of the crashes. In 6.5% of the crashes another driver was speeding. In 11.1% of the crashes either an ambulance driver, another driver, or both drivers were speeding.

**TABLE 4.0.10**

## AMBULANCES INVOLVED IN 1998 MISSOURI CRASHES

### DRIVER INVOLVEMENT BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	2	4.9	9	8.0	11	7.1
KNOWN DRIVER INVOLVED	1	100.0	39	95.1	104	92.0	144	92.9
UNKNOWN DRIVER INVOLVED	0	0.0	0	0.0	0	0.0	0	0.0
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>41</b>	<b>100.0</b>	<b>113</b>	<b>100.0</b>	<b>155</b>	<b>100.0</b>

**TABLE 4.0.11**

## DRIVERS OF AMBULANCES INVOLVED IN 1998 MISSOURI CRASHES

### SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	1	100.0	28	71.8	74	71.2	103	71.5
FEMALE	0	0.0	11	28.2	30	28.8	41	28.5
UNKNOWN	0	-	0	-	0	-	0	-
<b>TOTAL</b>	<b>1</b>	<b>100.0</b>	<b>39</b>	<b>100.0</b>	<b>104</b>	<b>100.0</b>	<b>144</b>	<b>100.0</b>

**TABLE 4.0.12**

# DRIVERS OF AMBULANCES INVOLVED IN 1998 MISSOURI CRASHES

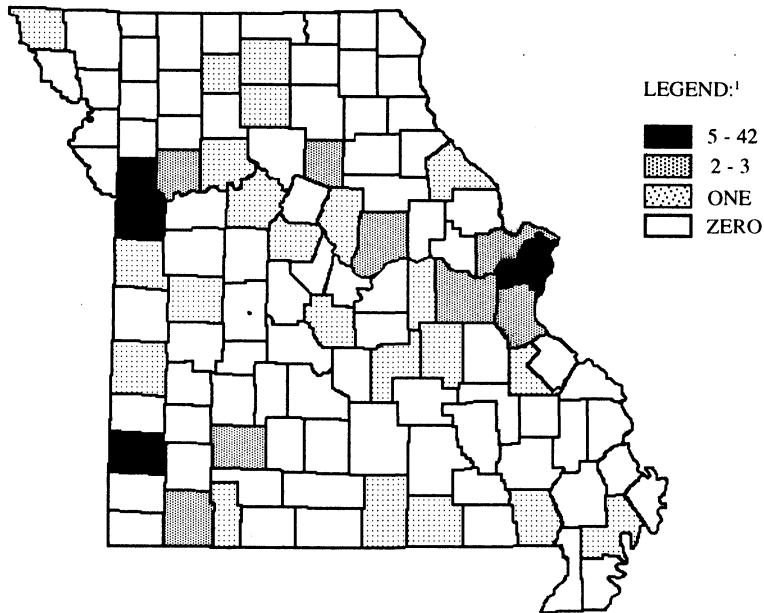
## AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
<b>AVERAGE AGE OF DRIVER</b>	43.0	-	33.6	-	30.6	-	31.6	-
15 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
16 - 20 YEARS	0	0.0	2	5.1	7	6.9	9	6.3
21 - 25 YEARS	0	0.0	10	25.6	27	26.5	37	26.1
26 - 30 YEARS	0	0.0	6	15.4	24	23.5	30	21.1
31 - 35 YEARS	0	0.0	7	18.0	24	23.5	31	21.8
36 - 40 YEARS	0	0.0	5	12.8	11	10.8	16	11.3
41 - 45 YEARS	1	100.0	4	10.3	3	2.9	8	5.6
46 - 50 YEARS	0	0.0	1	2.6	1	1.0	2	1.4
51 - 55 YEARS	0	0.0	3	7.7	3	2.9	6	4.2
56 - 60 YEARS	0	0.0	0	0.0	0	0.0	0	0.0
61 - 65 YEARS	0	0.0	0	0.0	0	0.0	0	0.0
66 YEARS AND OVER	0	0.0	1	2.6	2	2.0	3	2.1
UNKNOWN	0	-	0	-	2	-	2	-
<b>TOTAL</b>	1	100.0	39	100.0	104	100.0	144	100.0

TABLE 4.0.13

# 1998 AMBULANCE INVOLVED CRASHES

## COUNTY QUARTILE ANALYSIS



<sup>1</sup>LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	ST. LOUIS	42	27.5	24.5	BOONE	1	0.7
2.0	ST. LOUIS CITY	33	21.6	24.5	BUTLER	1	0.7
3.0	JACKSON	28	18.3	24.5	CARROLL	1	0.7
4.5	CLAY	5	3.3	24.5	CASS	1	0.7
4.5	JASPER	5	3.3	24.5	COOPER	1	0.7
First Quartile				24.5	CRAWFORD	1	0.7
Second Quartile				24.5	GASCONADE	1	0.7
6.5	FRANKLIN	3	2.0	24.5	GRUNDY	1	0.7
6.5	ST. CHARLES	3	2.0	24.5	HENRY	1	0.7
10.5	BARRY	2	1.3	24.5	HOWELL	1	0.7
10.5	CALLAWAY	2	1.3	24.5	LINN	1	0.7
10.5	GREENE	2	1.3	24.5	MILLER	1	0.7
10.5	JEFFERSON	2	1.3	24.5	NEW MADRID	1	0.7
10.5	RANDOLPH	2	1.3	24.5	OREGON	1	0.7
10.5	RAY	2	1.3	24.5	PHELPS	1	0.7
Second Quartile				24.5	PIKE	1	0.7
Third Quartile				24.5	ST. FRANCOIS	1	0.7
24.5	ATCHISON	1	0.7	24.5	SALINE	1	0.7
				24.5	STONE	1	0.7
				24.5	SULLIVAN	1	0.7

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
24.5	VERNON	1	0.7	75.5	LIVINGSTON	0	0.0
Third Quartile				75.5	MC DONALD	0	0.0
Fourth Quartile				75.5	MACON	0	0.0
75.5	ADAIR	0	0.0	75.5	MADISON	0	0.0
75.5	ANDREW	0	0.0	75.5	MARIES	0	0.0
75.5	AUDRAIN	0	0.0	75.5	MARION	0	0.0
75.5	BARTON	0	0.0	75.5	MERCER	0	0.0
75.5	BATES	0	0.0	75.5	MISSISSIPPI	0	0.0
75.5	BENTON	0	0.0	75.5	MONITEAU	0	0.0
75.5	BOLLINGER	0	0.0	75.5	MONROE	0	0.0
75.5	BUCHANAN	0	0.0	75.5	MONTGOMERY	0	0.0
75.5	CALDWELL	0	0.0	75.5	MORGAN	0	0.0
75.5	CAMDEN	0	0.0	75.5	NEWTON	0	0.0
75.5	CAPE GIRARDEAU	0	0.0	75.5	NODAWAY	0	0.0
75.5	CARTER	0	0.0	75.5	OSAGE	0	0.0
75.5	CEDAR	0	0.0	75.5	OZARK	0	0.0
75.5	CHARITON	0	0.0	75.5	PEMISCOT	0	0.0
75.5	CHRISTIAN	0	0.0	75.5	PERRY	0	0.0
75.5	CLARK	0	0.0	75.5	PETTIS	0	0.0
75.5	CLINTON	0	0.0	75.5	PLATTE	0	0.0
75.5	COLE	0	0.0	75.5	POLK	0	0.0
75.5	DADE	0	0.0	75.5	PULASKI	0	0.0
75.5	DALLAS	0	0.0	75.5	PUTNAM	0	0.0
75.5	DAVIESS	0	0.0	75.5	RALLS	0	0.0
75.5	DE KALB	0	0.0	75.5	REYNOLDS	0	0.0
75.5	DENT	0	0.0	75.5	RIPLEY	0	0.0
75.5	DOUGLAS	0	0.0	75.5	ST. CLAIR	0	0.0
75.5	DUNKLIN	0	0.0	75.5	STE. GENEVIEVE	0	0.0
75.5	GENTRY	0	0.0	75.5	SCHUYLER	0	0.0
75.5	HARRISON	0	0.0	75.5	SCOTLAND	0	0.0
75.5	HICKORY	0	0.0	75.5	SCOTT	0	0.0
75.5	HOLT	0	0.0	75.5	SHANNON	0	0.0
75.5	HOWARD	0	0.0	75.5	SHELBY	0	0.0
75.5	IRON	0	0.0	75.5	STODDARD	0	0.0
75.5	JOHNSON	0	0.0	75.5	TANEY	0	0.0
75.5	KNOX	0	0.0	75.5	TEXAS	0	0.0
75.5	LACLEDE	0	0.0	75.5	WARREN	0	0.0
75.5	LAFAYETTE	0	0.0	75.5	WASHINGTON	0	0.0
75.5	LAWRENCE	0	0.0	75.5	WAYNE	0	0.0
75.5	LEWIS	0	0.0	75.5	WEBSTER	0	0.0
75.5	LINCOLN	0	0.0	75.5	WORTH	0	0.0
				75.5	WRIGHT	0	0.0

TABLE 4.0.14





## GLOSSARY

**AMBULANCE INVOLVED TRAFFIC CRASH:** Any crash in which one or more ambulances were directly involved in the incident.

**EMERGENCY SERVICE VEHICLE INVOLVED TRAFFIC CRASH:** Any crash in which one or more emergency service vehicles (i.e., police, fire, ambulance, and 'other' emergency service vehicle) were directly involved in the incident.

**FATAL TRAFFIC CRASH:** A crash in which one or more persons were killed as a result of the crash and their death(s) occurred within 30 days of the incident.

**FIRE VEHICLE INVOLVED TRAFFIC CRASH:** Any crash in which one or more fire vehicles were directly involved in the incident.

**PERSONAL INJURY TRAFFIC CRASH:** Any crash in which no person was killed but one or more persons were injured in the incident.

**POLICE VEHICLE INVOLVED TRAFFIC CRASH:** Any crash in which one or more police vehicles were directly involved in the incident.

**PROPERTY DAMAGE TRAFFIC CRASH:** Any crash in which no person was killed or injured but property was damaged in the incident.

**QUARTILE:** The value that marks the boundary between two consecutive intervals in a frequency distribution of four intervals with each containing one quarter of the total population.

**RATE OF CHANGE:** The formula is:

$$\frac{\text{Value in Current Period} - \text{Value in Base Period}}{\text{Value in Base Period}} \times 100$$

**RURAL AREA:** Any community of less than 5,000 population or an unincorporated area of the State.

**URBAN AREA:** Any community in the State having a population of 5,000 or more.

